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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/616,882

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Kamlesh Rath

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WASHINGTON, DC 20006

EXAMINER

GONZALEZ, AMANCIO

ART UNIT

PAPER NUMBER

2617

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 10/616,882 | Applicant(s) RATH, KAMLESH | |
| | Examiner AMANCIO GONZALEZ | Art Unit 2617 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 April 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

In view of the Pre-Brief Appeal Conference decision on 08/27/2009,
PROSECUTION IS HEREBY REOPENED. New ground of rejection applied as set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

Claim Objections

Claim 24 is objected to because of the following informalities: Claim 24 seems to have been numbered by mistake as Claim 246; but for the purpose of examination, it has been considered as Claim 24.

Appropriate correction is required.

Disclosed Invention

The present application discloses the overall network architecture of a scalable broadband wireless mesh access network.

Claimed invention

As per independent **claims 1**, the present application claims a mesh access network, comprising:

at least one base-station comprising a plurality of sectors;
each sector comprising of a plurality of terminal nodes, said terminal nodes comprising
both indoor terminal nodes and outdoor terminal nodes, and comprising a plurality of outdoor
repeaters, wherein each of the plurality of terminal nodes comprises an antenna;
wherein said nodes in each section are arranged in a tree structure starting from said base station;
wherein said base-station sectors use different frequency bands that are located in alternate sectors of said base-station; and
a module for interference management and sector reuse comprising network management of frequency, time, and directionality.

Claim 19 is addressed to the same subject matter or claim 1.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims **1-4, 7, and 12-18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Majidi -Ahy (US 20070184828 A1), hereafter "Majidi," in view of Ertel (US 20040116115 A1), hereafter "Ertel," further in view of Bandeira et al. (US Pat 6728514), hereafter "Bandeira," further in view of Shurvinton et al. (US 7006823 B2), hereafter "Shurvinton."

Consider **claim 1**. Majidi discloses:

a mesh access network (**see figure 1, col. 8 lines 55-67, where Majidi discusses a set of access points 140 (using reflectors 141, repeaters 142, or routing or switching devices 143) forming a mesh network in which messages are routed between a base station controller 120 and customer premises equipment 130, using the set of access points 140 as a communication sub-network, e.g., a mesh network**);

at least one base-station comprising a plurality of sectors (**see col. 5 lines 9-18, figs. 1-5, where Majidi discusses a multi-sector cell 110 including a base station controller 120**);

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each sector comprising of a plurality of terminal nodes, said terminal nodes comprising a plurality of repeaters, wherein each of the plurality of terminal nodes comprises an antenna (***terminal nodes read on access points*** -see figures 1-5 and col. 5 lines 14-17, and col. 6 lines 32-36, where Majidi discusses wherein each sector contains a set of access points, each access point 140 including a repeater 142. Note: it is well known in the art that access points comprise antenna);

However, Majidi does not particularly refer to or disclose indoor and outdoor terminal nodes.

Ertel, in related art, discloses indoor and outdoor terminal nodes (**see paragraph 0040, where Ertel discusses utilizing indoor and outdoor access points**).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the invention of Majidi with the teachings of Ertel and have it include indoor and outdoor access points as terminal nodes, thereby providing communication nodes adapted to operate within a wider range of environmental conditions, as discussed by Ertel.

But Majidi, as modified by Ertel, does not refer to or disclose wherein said nodes in each sector are arranged in a tree structure starting from said base-station, or management of frequency, time, and directionality.

Bandeira, in related art, discloses wherein said nodes in each sector are arranged in a tree structure starting from said base-station (**see col. 3 lines 35-59, col. 6 lines 27-36, col. 13 lines 63-67 and col. 14 lines 1-16, figs. 1 and 2**); and

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management of frequency, time, and directionality (**see col. 2 lines 62-65, and col. 3 lines 16-21**).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combined inventions of Majidi and Ertel and have it include nodes arranged in a tree structure and management of frequency, time, and directionality, as taught by Bandeira, thereby providing means for efficiently transferring large amount of multimedia content between various remote locations and a central location, as discussed by Bandeira (**see col. 1 lines 13-28**).

But Majidi, as modified by Ertel and Bandeira, does not particularly refer to or disclose wherein said base-station sectors use different frequency bands that are located in alternate sectors of said base-station, or a module for interference management.

Shurvinton, in related art, discloses wherein said base-station sectors use different frequency bands that are located in alternate sectors of said base-station, or a module for interference management (**see col. 4 lines 52-66, col. 7 lines 28-40**).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combined inventions of Majidi and Ertel and have it include wherein said base-station sectors use different frequency bands that are located in alternate sectors of said base-station, or a module for interference management, as taught by Shurvinton, thereby providing means for the purpose of achieving higher capacity in a communication network, as discussed by Shurvinton (**see col. 2 lines 34-42**).

Claim 19, after analysis and consideration, is found to address the same subject matter as claim 1; therefore, same rejection rationale applies.

Consider **claims 2 and 7**. Majidi, as modified by Ertel, Bandeira, and Shurvinton teaches claim 1; and Majidi further discloses base station and repeaters (see Majidi: see abstract, col. 2 lines 23-26, col. 4 lines 15-18).

Consider **claims 3, 4, 13-18, 21, 22, and 31-36**. Majidi, as modified by Ertel, Bandeira, and Shurvinton teaches claims 1, 2, 19, and 20 above respectively; Majidi further discloses a multi-sector cell and time-slot –TDMA- system (see Majidi: col. 8 lines 51-67, col. 10 lines 31-36); and Bandeira further discloses several level of repeaters (see Bandeira: col. 9 lines 63-67 and col. 10 lines 1-4).

Consider **claims 12 and 30**. Majidi, as modified by Ertel, Bandeira, and Shurvinton teaches claims 1 and 19; and Bandeira further teaches tree-structured network (see col. 3 lines 35-59, col. 6 lines 27-36, col. 13 lines 63-67 and col. 14 lines 1-16, figs. 1 and 2).

Consider **claims 5, 6, 23, and 24**. Majidi, as modified by Ertel, Bandeira, and Shurvinton teaches claims 1 and 19; and Shurvinton further discloses frequency reuse (see figures 3, 4, 7, col. 3 lines 32-38, and col. 4 lines 5-10).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combined inventions of Majidi, Kay, and Bandeira and have it include frequency reuse, as taught by Bustamante, thereby providing a frequency reuse scheme in a cellular network for the purpose of increasing capacity and minimizing interference.

4. **Claims 8-11 and 26-29** are rejected under 35 U.S.C. 103(a) as being unpatentable over Majidi -Ahy (US 20070184828 A1), hereafter "Majidi," in view of Ertel (US 20040116115 A1), hereafter "Ertel," further in view of Bandeira et al. (US Pat 6728514), hereafter "Bandeira," further in view of Shurvinton et al. (US 7006823 B2), hereafter "Shurvinton," as applied to claims 1, 7, 19, and 25 above, further in view of Ngan et al. (US Pat 6973312), hereafter "Ngan."

Consider **claims 8, 9, 26, and 27**. Majidi, as modified by Ertel, Bandeira, and Shurvinton teaches claims 1, 7, 19, and 25 above respectively, but does not particularly refer to increasing capacity adding carrier.

Ngan discloses increasing capacity adding carrier (see col. 1, lines 1-3; col. 5, lines 47-52).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combined inventions of Majidi, as modified by Ertel, Bandeira, and Shurvinton and have it include increasing capacity adding carrier, as taught by Ngan, thereby providing a frequency plan in a wireless network for the purpose of accommodating a greater number of users in a required moment at a determined coverage area.

Consider **claims 10 and 28**. Majidi, as modified by Ertel, Bandeira, and Shurvinton and Ngan teaches claims 9 and 27 above, and Majidi further discloses base station and repeaters (see Majidi: see abstract, col. 2 lines 23-26, col. 4 lines 15-18).

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Consider **claims 11 and 29**. Majidi, as modified by Ertel, Bandeira, and Shurvinton teaches claims 9 and 27 above; Majidi further discloses a multi-sector cell and time-slot –TDMA- system (see Majidi: col. 8 lines 51-67, col. 10 lines 31-36); and Bandeira further discloses several level of repeaters (see Bandeira: col. 9 lines 63-67 and col. 10 lines 1-4).

Conclusion

Any response to this Office Action should be **faxed to (571) 273-8300 or mailed to:**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Hand-delivered responses should be brought to

Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Amancio González, whose telephone number is (571) 270-1106. The Examiner can normally be reached on Monday-Thursday from 8:00am to 5:00pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Dwayne Bost, can be reached at (571) 272-7023. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published

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applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 703-305-3028.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

/Nghi H. Ly/

Primary Examiner, Art Unit 2617

AG/ag

November 5, 2009